Math 036

Practice Test 1

1) Factor out greatest common factor

$7x - 42y + 7$

$7(x - 6y + 1)$ ✓

2. $b(d^3+7)+1(d^3+7)$

$(d^3+7)(b+1)$ ✓

3. Factor by grouping

$(8x^3 - 24x^2) + (7x - 21)$

$8x^2 \quad 8x^2 \quad 7 \quad 7$

$8x^2(x-3)+7(x-3)$

$(x-3)(8x^2+7)$

4.

$(7z^2 - 3xz) - 7z + 3x$

$z \quad z \quad -1 \quad -1$

$z(7z-3x) - 1(7z-3x)$

$(7z-3x)(z-1)$ ✓

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5/21/14, 4:29 AM, 26m 26s

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$(7z-3x)(z-1)$ ✓

5. $(5p^2 - 2pq)(-10p + 4q)$

p p -2 -2

$p(5p-2q)-2(5p-2q)$

$(5p-2q)(p-2)$ ✓

6. Factor each polynomial completely.

$x^2+8x+15$

$3+5=8$

$(x+3)(x+5)$ ✓

7. x^2-5x-3 but $3+1=4$, $3-1=2$

3 1

$(x \quad)(x \quad)$

Neither one of these answers in middle.

Prime

8. $p^2+6pq-16q^2$

$8-2=6$

$(p+8q)(p-2q)$ ✓

9. $2x^2+6x-56$

$2 \quad 2 \quad 2$

$2(x^2+3x-28)$

$7-4=3$

$2(x+7)(x-4)$ ✓

10. $20x^2+27x+9$

$4 \quad 5 \quad 3 \quad 3$

$15x$

$(4x+3)(5x+3)$

$12x$

$15x+12x=27x$ ✓

$(4x+3)(5x+3)$

11. $-40x^3+58x^2-10x$

$-2x \quad -2x \quad -2x$

$-2x(20x^2-29x+5)$

$5 \quad 1$

$-25x$

$(4x-5)(5x-1)$

$-4x$

$-25x-4x=-29x$

$-2x(4x-5)(5x-1)$

12. $15y^2-26y+8$

$5 \quad 3 \quad 2 \quad 4$

$6x$

$(5y-2)(3y-4)$

$-20y$

$-20y-6y=-26y$

$(5y-2)(3y-4)$

13. $x^2 - 14xy + 49y^2$

$(x - 7y)(x - 7y) \Rightarrow \boxed{(x-7y)(x-7y)}$

$-7y - 7y = -14$

14. $6x^2 - 11x - 10$

$3 \cdot 2 \quad 2 \cdot 5$

$(3x + 2)(2x - 5) \Rightarrow \boxed{(3x+2)(2x-5)}$

$4x \quad -15x$

$+4x - 15x = -11x$

15. $3x^3 + 14x^2 + 15x$

$x((3x^2 + 14x + 15)$

$5 \cdot 3$

$x(3x + 5)(1x + 3) \Rightarrow \boxed{x(3x+5)(x+3)}$

$5x \quad 9x$

$5x + 9x = 14x$

16. Factor the following binomials completely

$x^2 - 16$

$(x + 4)(x - 4)$ ✓

17. $9x^2 - 16$

$(3x + 4)(3x - 4)$ ✓

18. $x^4 - 16$

$(x^2 + 4)(x^2 - 4)$ ✓

$(x^2+4)(x+2)(x-2)$ ✓

19. $16xy^2 - 9x$

$x(16y^2 - 9)$

$x(4y + 3)(4y - 3)$ ✓

20. Solve the following equations

$(x+9)(x-3) = 0$

$x + 9 = 0$ $\quad$ $x - 3 = 0$

$-9 \ -9$ $\quad$ $+3 \ +3$

$x = -9$ $\quad$ $x = 3$

21. $x^2 + 10x - 24 = 0$

$12 \cdot -2 = -24$ $\quad$ $12 + -2 = 10$

$(x + 12)(x - 2) = 0$

$x + 12 = 0$ $\quad$ $x - 2 = 0$

$-12 \ -12$ $\quad$ $+2 \ +2$

$x = -12$ $\quad$ $x = 2$

22. $3x^2+16x=12$

$-12\ \ -12$

$3x^2+16x-12=0$

$2x \quad 2 \quad 6$

$(3x-2)(x+6)=0$

$18x$

$+18x-2x=16x$

$3x-2=0$ $\quad$ $x+6=0$

$+2\ +2$ $\quad$ $-6\ -6$

$\frac{3x}{3}=\frac{2}{3}$ $\quad$ $x=-6$

$x=\frac{2}{3}$

23. $3x^3-4x^2-7x=0$

$x(3x^2-4x-7)=0$

$7x \quad -7 \quad 1 \quad -1$

$x(3x-7)(1x+1)=0$

$3x$

$-7x+3x=-4x$

$x=0$ $\quad$ $3x-7=0$ $\quad$ $x+1=0$

$+7\ +7$ $\quad$ $-1\ -1$

$\frac{3x}{3}=\frac{7}{3}$ $\quad$ $x=-1$

$x=\frac{7}{3}$

24. $x(x+15)=0$

$x=0$ $\quad$ $x+15=0$

$-15\ -15$

$x=-15$

25. $x^2+2x=0$

$x(x+2)=0$

$x=0$ $\quad$ $x+2=0$

$-2\ -2$

$x=-2$